viewed from an incident light side, the delay axis of the phase plate differs from an alignment direction of the second alignment layer on the second transparent substrate by an angle in a range of -65° to -85° in the counterclockwise direction as viewed in from the incident light side, and an absorption axis of the reflecting polarizing film in the transparent scattering layer is inclined at an angle of about 75° in the counterclockwise direction with respect to a 3 o'clock position and differs from an alignment direction of the alignment layer of the first transparent substrate by an angle in a range of -305° to -325° in a clockwise direction as viewed from the incident light side.

Remarks

Summary

Claims 1 and 3 were pending. Claim 1 has been amended. No new matter has been added as a result of this amendment.

Rejection of the Claims

In the Office Action dated August 28, 2001, the Examiner rejected Claims 1 and 3 under 35 U.S.C. §112, first paragraph as containing subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. More specifically, the Examiner rejected the phrase "the reflecting polarizing film being disposed on an outer surface of the first transparent substrate with the black layer formed as an outermost layer of the reflecting polarizing film" as containing new matter.

Applicant traverses the rejection. Both the text on page 7, lines 15-25, as well as Fig. 1 clearly disclose that the black layer 12 of the reflecting polarizing film 13 is disposed farther from the transparent substrate 4 than the transparent scattering layer 11, and thus is the outermost layer of the reflecting polarizing film 13. Applicant has nevertheless amended Claim 11 and submits that the phrase "the reflecting polarizing film being disposed on an outer surface of the first transparent substrate such that the black layer is an outermost layer of the reflecting polarizing film" also recites an arrangement that is described in the specification in such a way as to reasonably

convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention

The Examiner rejected Claims 1 and 3 under 35 U.S.C. §103(a) as being unpatentable over Yamaguchi (U.S. patent No. 6,067,136). Applicant traverses the rejection. Nevertheless, Applicant has amended Claim 1 to better define the invention to which the Claims are directed.

Claim 1 recites a reflection liquid crystal display in which the absorption axis of the polarizing plate and the delay axis of the phase plate differ by -40° to -60° as viewed in the counterclockwise direction from the incident light side, the delay axis of the phase plate and the alignment direction of the second alignment layer differ by -65° to -85° as viewed in the counterclockwise direction from the incident light side, and the absorption axis of the reflecting polarizing film and the alignment direction of the alignment layer of the first transparent substrate differ by -305° to -325° as viewed in the clockwise direction from the incident light side. The absorption axis of the reflecting polarizing film is inclined at an angle of about 75° in the counterclockwise direction with respect to a 3 o'clock position.

Yamaguchi does not anticipate or suggest the angle differences recited in amended Claim 1 or that the absorption axis of the reflecting polarizing film is inclined specifically at an angle of about 75° in the counterclockwise direction with respect to a 3 o'clock position. For example, Yamaguchi discloses in Fig. 2 that this angle is 15° (13a) measured clockwise from the 3 o'clock position, while in Fig. 8, this angle is 40°. Furthermore, Yamaguchi does not anticipate or suggest that the angle difference between the absorption axis of the reflecting polarizing film and the alignment direction of the alignment layer of the first transparent substrate is -305° to -325° [clockwise]. Yamaguchi discloses in Fig. 2 that this clockwise difference is 210° (6b) + 15° (13a) = 225° measured from the 3 o'clock position, while in Fig. 8, this difference is 200° (6b) + 40° (13a) = 240°.

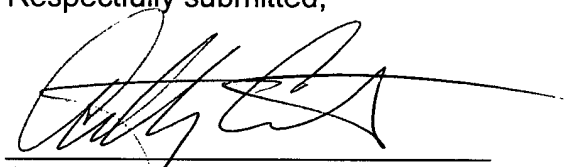
For at least these reasons, Yamaguchi does not anticipate or suggest the arrangement of amended Claim 1. Thus, amended Claim 1 is patentable over the prior art cited by the Examiner.

New Claim 3 recites the angular ranges with more particularity. Thus, for similar reasons, Yamaguchi does not anticipate or suggest the arrangement of new Claim 3. Thus, new Claim 3 is patentable over the prior art cited by the Examiner.

Conclusion

In view of the amendments and arguments above, Applicant respectfully submits that all of the pending claims are in condition for allowance and seeks an early allowance thereof. If for any reason the Examiner is unable to allow the application in the next Office Action and believes that a telephone interview would be helpful to resolve any remaining issues, he is respectfully requested to contact the undersigned.

Respectfully submitted,



Anthony P. Curtis, Ph.D.
Registration No. 46,193
Agent for Applicant

BRINKS HOFER GILSON & LIONE
P.O. BOX 10395
CHICAGO, ILLINOIS 60610
(312) 321-4200

APPENDIX A
Serial No. 09/395,666
REFLECTION LIQUID CRYSTAL DISPLAY CAPABLE OF DISPLAYING PICTURES IN IMPROVED COLOR PURITY
TAKAHITO MAFUNE

Please amend Claim 1 as follows:

1. (Three times Amended) A reflection liquid crystal display comprising:

a first transparent substrate;

a second transparent substrate disposed opposite to the first transparent substrate;

a liquid crystal layer sandwiched between the first and the second transparent substrates;

a first transparent electrode layer formed on an inner surface of the first transparent substrate;

a first alignment layer formed on the first transparent electrode layer;

a reflecting polarizing film including a laminated combination of a transparent scattering layer composed of a polyester resin and a black layer of an acrylic resin as a light absorbing layer, the reflecting polarizing film being disposed on an outer surface of the first transparent substrate ~~with~~ such that the black layer ~~formed as~~is an outermost layer of the reflecting polarizing film;

a second transparent electrode layer formed on an inner surface of the second transparent substrate;

a second alignment layer formed on the second transparent electrode layer;

a phase plate placed on an outer surface of the second transparent substrate; and

a polarizing plate disposed on the phase plate,

wherein the liquid crystal layer has a helical structure twisted through an angle in the range of 240° to 260° in a direction of a thickness of the liquid crystal layer,

a value $\Delta n_1 d_1$ which is a product of Δn_1 and d_1, where Δn_1 is an index anisotropy of the phase plate and d_1 is a thickness of the phase plate, is in the range of 1000 to 2000 nm,

a value Δnd which is a product of Δn and d, where Δn is an index anisotropy of the liquid crystal and d is a thickness of the liquid crystal layer, is in the range of 800 to 1800 nm,

an absorption axis of the polarizing plate differs from a delay axis of the phase plate by an angle in a range of -40° to -60° in a counterclockwise direction as viewed from an incident light side, the delay axis of the phase plate differs from an alignment direction of the second alignment layer on the second transparent substrate by an angle in a range of -65° to -85° in the counterclockwise direction as viewed in from the incident light side, and an absorption axis of the reflecting polarizing film in the transparent scattering layer is inclined at an angle of about 75° in the counterclockwise direction with respect to a 3 o'clock position and differs from an alignment direction of the alignment layer of the first transparent substrate ~~at~~ by an angle in a range of -305° to -325° in a clockwise direction as viewed from the incident light side.

~~wherein the liquid crystal layer has a helical structure twisted through an angle in the range of 240° to 260° in a direction of a thickness of the liquid crystal layer,~~

~~a value $\Delta n_1 d_1$ which is a product of Δn_1 and d_1, where Δn_1 is an index anisotropy of the phase plate and d_1 is a thickness of the phase plate, is in the range of 1000 to 2000 nm,~~

~~a value Δnd which is a product of Δn and d, where Δn is an index anisotropy of the liquid crystal and d is a thickness of the liquid crystal layer, is in the range of 800 to 1800 nm,~~

~~an absorption axis of the polarizing plate differs from a delay axis of the phase plate by an angle in a range of -40° to -60° in a counterclockwise direction as viewed from an incident light side, the delay axis of the phase plate differs from an alignment direction of the second alignment layer on the second transparent substrate by an angle in a range of -65° to -85° in the counterclockwise direction as viewed in from the incident light side, and an absorption axis of the reflecting polarizing film in the transparent scattering layer differs from an alignment direction of the alignment layer of the first transparent substrate at by angle in a range of -305° to -325° in a clockwise direction as viewed from the incident light side.~~